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October 24, 2016

**LFC INVESTMENT REPORT FOR THE QUARTER ENDING JUNE 30, 2016**

This report details the comparative investment performance of the three investment agencies: the Educational Retirement Board (ERB), the Public Employees Retirement Association (PERA), and the State Investment Council (SIC). The report outlines how the returns generated by these agencies differed from that of the archetypical public investment fund and how management and consultants added or subtracted value. As long-term performance is an important metric, this report includes fund returns and comparative rankings for the one, three, five, and 10-year periods and risk metrics for the quarter ended June 30<sup>th</sup>, one, three, and five-year periods. This report derives agency performance and market environment information from the Investment Performance Report submitted by PERA, ERB, and SIC for the quarter ending June 30, 2016. Information from the Wilshire Trust Universe Comparison Service (TUCS) report is also included.

**Market Environment.** The fourth quarter of FY16 encountered significant uncertainty in the assets market, largely due to the "Brexit" referendum in the United Kingdom. Following the vote on June 23 for the U.K. to leave the European Union, global equities went into a sharp two-day sell-off. Many investors instead sought out U.S. Treasuries and sovereign bonds. Global equity markets modestly recovered by the end of the month.

Gross domestic product growth continued to be moderate in the fourth quarter at 1.2 percent. In their June meeting, the Federal Open Market Committee (FOMC) decided to maintain the target range for the federal funds rate at 1/4 percent to 1/2 percent. FOMC made the decision against raising interest rates based on weak global economic growth indicators, lackluster U.S. payroll growth, and declining productivity.

The U.S. stock market rose during the quarter by 2.8 percent, as represented by the Wilshire 5000 Total Market Index<sup>SM</sup>.

**Table 1. Market Environment as of June 30, 2016**

Index Returns (%)	Q4 2016	1 Year	5 Years	10 Years
S&P 500	2.5	4.0	12.1	7.4
Wilshire 5000	2.8	3.0	11.6	7.5
Russell 3000	2.6	2.1	11.6	7.4
Dow Jones Industrial	2.1	4.5	10.4	7.7
MSCI EAFE	-1.5	-10.2	1.7	1.6
Barclays Govt/Credit	2.7	6.7	4.1	5.2

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The consumer price index (CPI) was up 1.2 percent this quarter, indicating an increased pace of consumer inflation. Core CPI, excluding food and energy, increased 2.3 percent over the fiscal year.

Crude oil prices ended the quarter at \$48.33 per barrel. Natural gas prices increased 32.2 percent over the quarter, ending at \$2.92 per million BTUs. Other commodities also experienced gains. Gold values increased 6.8 percent to \$1,318 per troy ounce, largely due to uncertainty over Brexit.

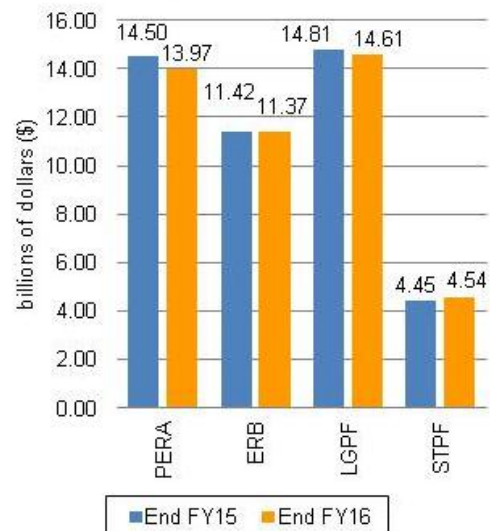
U.S. Treasury securities were up 2.1 percent this quarter, primarily due to investor uncertainty over the outcome of the Brexit vote. Two-year U.S. Treasury yields dropped 15 basis points to 0.6 percent. The 10-year Treasury yield finished the quarter at 1.6 percent, down from 1.9 percent in the previous quarter.

**Returns and Ending Balances.** Figure 1 to the right summarizes the ending balances for year end FY15 and FY16. PERA, ERB, and LGPF ended FY 16 with fund balances lower than the previous fiscal year.

Figures 2a – 2d summarize the agencies' investment returns for the quarter and for the one, three, five, and 10-year periods. The agencies struggled to meet their return targets, which are set at 7.75 percent for ERB and PERA. Return targets for SIC are set at 7 percent and 6.75 percent for LGPF and STPF, respectively. During its last October meeting, SIC decided to lower the investment targets downward from the previous 7.5 percent. This was due to factors including the distribution policy, maintaining intergenerational equity, future return expectations, and risk levels. The lower target for the STPF considers the inclusion of economically targeted investments (ETIs). ETIs typically perform below-market because the investments are not targeted solely at delivering returns. The LGPF does not have ETIs in its portfolio and so is a better gauge of SIC's performance. The difference in return between the two is a rough approximation of the opportunity cost of these initiatives.

**Investment Portfolio Policy Objectives.** PERA's investment policy states the pension fund's primary objective is to prudently invest assets in order to meet statutory obligations

**Figure 1. Fund Balance  
FY 2015 vs. FY 2016**



**Figure 2a. ERB Total Portfolio  
Returns  
as of June 30, 2016 - End  
Balance: \$11.4B**



**Figure 2b. PERA Total Portfolio  
Returns  
as of June 30, 2016 - End  
Balance: \$14.0B**



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to its members. The fund's assets are managed to reflect its unique liabilities and funding resources, incorporating accepted investment theory; prudent levels of risk; and reliable, empirical evidence. The actuarial assumed target rate of return is the key assumption affecting future funding rates and payment of pension obligations. Investment performance that exceeds or underperforms the target rate may materially affect future funding rates.

ERB's bases its investment philosophy and techniques upon a set of widely accepted investment models. ERB focuses on the prudent investment and management of its members' contributions to the retirement fund, utilizing techniques tempered by experience and knowledge. The investment goal is to earn an inflation-adjusted return sufficient to attain the target funding level over a long-term period.

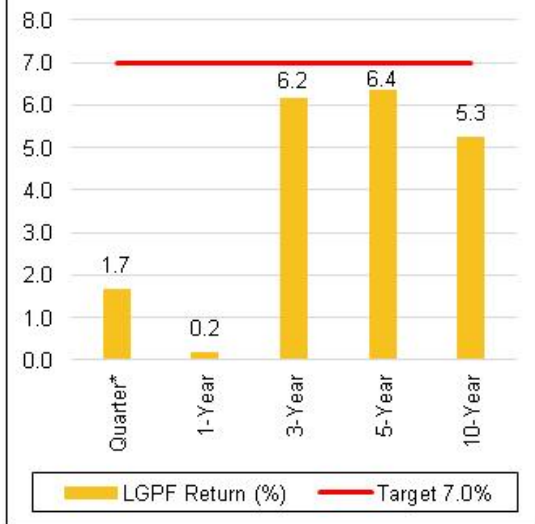
SIC's investment goals are to preserve the permanent endowment funds and to provide for current and future beneficiaries by growing the funds at a rate to keep pace with inflation to maintain value over a long-term time horizon. SIC seeks to manage the funds to ensure that future generations receive the same or greater benefits as current beneficiaries, while maximizing current distributions through time to provide current revenue sources to the state's general fund. Total return, which includes realized and unrealized gains, plus income, less expenses, is the primary goal of the funds.

**Risk Metrics.** Risk is an inherent component of investing in financial markets. As risk of an investment fund is a function of the strategic asset allocation, it is prudent to keep the risk within tolerant levels to achieve the overall goals of the plan. This report utilizes a few key measures to evaluate the impact that risk plays in an investment portfolio.

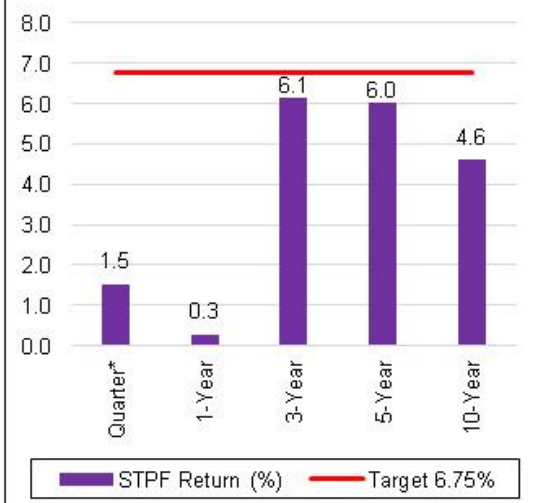
**Standard deviation** gauges the variability of returns around a mean of distribution. Standard deviation applies to the rate of return of a portfolio to measure the overall volatility. Investments that are more volatile generate a higher standard deviation, while a lower standard deviation is associated with less volatile investments.

Reviewing Figure 3a above, the PERA portfolio reported the highest sensitivity, while ERB's exposure was slightly less volatile. The LGPF and STPF portfolios show lower volatility

**Figure 2c. SIC Total Portfolio Returns as of June 30, 2016**  
Ending Balances: LGPF \$14.6B



**Figure 2d. SIC Total Portfolio Returns as of June 30, 2016**  
Ending Balances: STPF \$4.5B



**Figure 3a. Standard Deviation as of June 30, 2016**



over the one and three-year periods. However, the five-year period saw stronger volatility overall for the LGPF and STPF. For PERA and ERB, the five-year period appears less volatile than the one-year period.

**Tracking error** outlines how well a portfolio is performing relative to a benchmark. As the annualized standard deviations of a portfolio's excess returns, tracking error gauges how consistently a portfolio outperforms, or underperforms, its benchmark. Generally, it is desirable to have low tracking error and positive excess returns. Portfolios realizing low average returns combined with large tracking errors can signify problems with an investment.

Figure 3b shows the tracking error for each agency for the one-, three-, and five-year periods. Tracking errors for each agency are relatively low, with the SIC funds reporting the lowest tracking error and PERA with the highest.

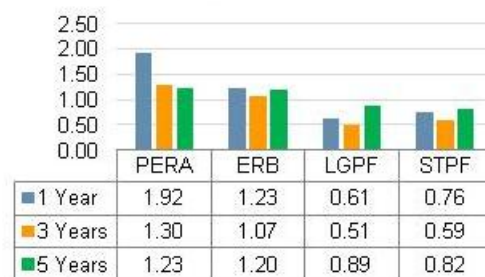
The **Sharpe ratio** is a risk-adjusted measure calculated by using the standard deviation and the fund's excess return to evaluate reward per unit of risk. The higher the ratio, the better the risk-adjusted performances for the investment fund. Typically, a good ratio is 1 or better, a very good ratio is 2 or better, and an excellent ratio is 3 or better.

As demonstrated in Figure 3c, each of the investment funds produced Sharpe ratios of less than 1 for the one-year period. ERB, LGPF, and STPF's ratios climb above 1 for the three-year period. Only ERB's ratio remains above 1 for the five-year period.

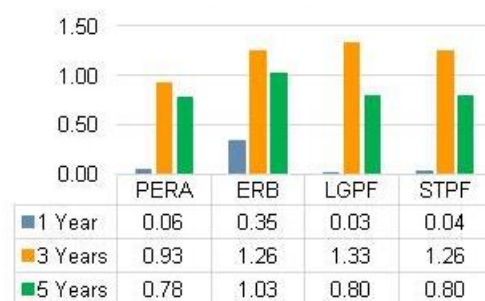
The **information ratio** evaluates the ratio of portfolio returns above the benchmark to the volatility of the returns. It indicates by how much the manager outperforms the benchmark. Higher information ratios indicate greater consistency. Low ratios indicate a fund is underperforming. Negative ratios mean the fund was unable to produce any excess returns at all. The information ratios presented in Figure 3d reflect ERB as performing well against the benchmark while PERA, LGPF, and STPF struggled.

The **beta** of a portfolio signifies the portfolio's risk as compared to the market as a whole. If the beta is approximately equal to '1', then there is a very strong correlation between the portfolio and the movements of the

**Figure 3b. Tracking Error as of June 30, 2016**



**Figure 3c. Sharpe Ratio as of June 30, 2016**



**Figure 3d. Information Ratio as of June 30, 2016**



**Figure 3e. Beta as of June 30, 2016**



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market. A beta less than 1 means the portfolio is less risky and thus experiences less movement than the market. A beta greater than 1 indicates greater risk, which can generate greater-than-market returns or losses.

As shown in Figure 3e above, each of the investment funds' beta is near one, indicating that the investments generally follow market movements. ERB's portfolio has performed consistently with lower volatility and lower correlation with broad market swings. PERA and STPF's portfolios generated a beta slightly greater than one, indicating they were slightly more volatile than the market.

**Management Fees.** For fiscal year 2016, the investment agencies prepared a compilation of management fees for the investment portfolios at the Investments and Pensions Oversight Committee meeting. The fees illustrated in tables 2a – 2c include the management, administrative, audit, operational, and staff costs associated with administering the investment plans.

ERB paid the highest amount of fees, at 84 basis points, in proportion to the overall fund. Table 2a below shows ERB paid the majority of management fees for investments in private equity and opportunistic credit. Opportunistic credit is an alternative investment category with a risk profile higher than traditional investments and lower risk than various other alternative investments including private equity.

**Table 2a. Educational Retirement Board - Asset Management Fees Paid FY 2016**

Asset Class	Management Fees	Performance Fees	Total	Percentage	Annual Cost (in bps)
Domestic Equity	\$ 2,526,441	\$ -	\$ 2,526,441	2.1%	9
International Equity	\$ 9,519,542	\$ -	\$ 9,519,542	8.0%	58
Fixed Income	\$ 1,290,384	\$ 2,280,022	\$ 3,570,406	3.0%	11
Private Equity	\$ 28,578,921	\$ 7,425,440	\$ 36,004,361	30.2%	147
Private Real Estate	\$ 9,046,302	\$ 746,126	\$ 9,792,429	8.2%	124
Real Return	\$ 12,018,479	\$ 144,545	\$ 12,163,024	10.2%	155
Hedge Funds	\$ 38,712	\$ -	\$ 38,712	0.0%	114
Opportunistic Credit	\$ 36,206,849	\$ 906,421	\$ 37,113,270	31.1%	140
GTAA	\$ 6,619,698	\$ -	\$ 6,619,698	5.5%	121
Risk Parity	\$ 2,052,195	\$ -	\$ 2,052,195	1.7%	34
<b>Total</b>	<b>\$ 107,897,524</b>	<b>\$ 11,502,554</b>	<b>\$ 119,400,078</b>	<b>100.0%</b>	<b>84</b>

**Table 2b. Public Employees Retirement Association - Asset Management Fees Paid FY 2016**

	<u>Management</u>	<u>Performance</u>			<u>Annual Cost</u>
<u>Asset Class</u>	<u>Fees</u>	<u>Fees</u>	<u>Total</u>	<u>Percentage</u>	<u>(in bps)</u>
International Equity	\$ 22,059,571	\$ 13,483,970	\$ 35,543,541	44.8%	27
Fixed Income	\$ 10,694,103	\$ 1,407,848	\$ 12,101,951	15.3%	85
Real Assets	\$ 19,887,314	\$ 7,098,504	\$ 26,985,818	34.0%	97
Risk Parity	\$ 4,631,898	\$ -	\$ 4,631,898	5.8%	11
<b>Total</b>	<b>\$ 57,272,886</b>	<b>\$ 21,990,322</b>	<b>\$ 79,263,208</b>	<b>100.0%</b>	<b>36</b>

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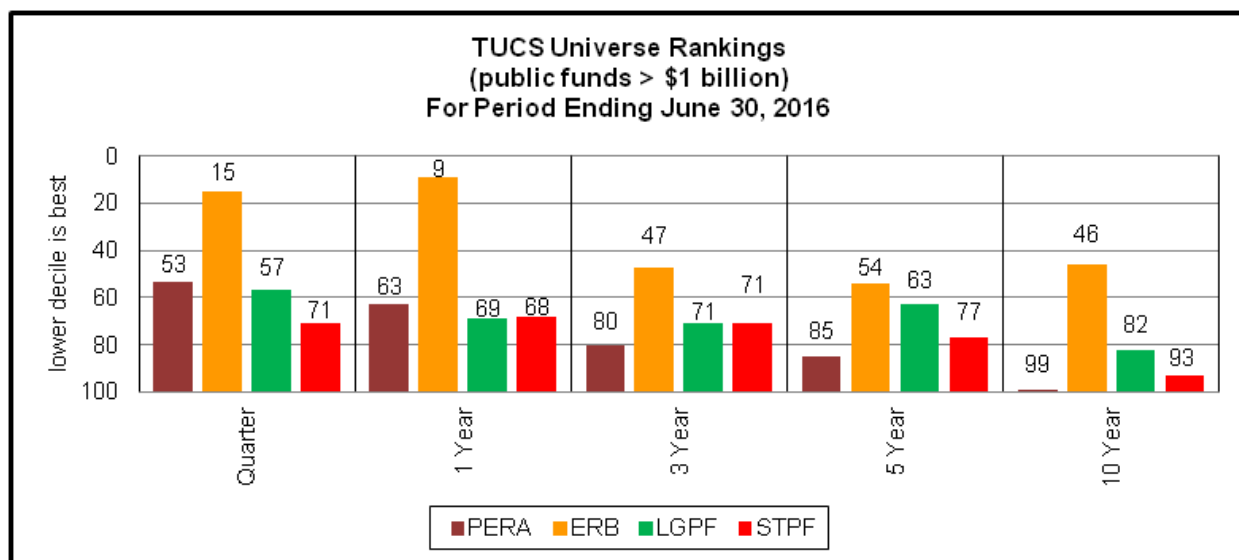
PERA paid the lowest amount of fees in proportion to the overall fund, totaling 36 basis points for the fiscal year. Table 2b above shows the agency paid the majority of its fees for investments in global equity and real assets.

SIC, shown in Table 2c below, paid the largest portion of its fees for investments in private equity, followed by hedge funds and real estate respectively.

**Table 2c. State Investment Council- Asset Management Fees Paid FY 2016**

Asset Class	Management Fees	Performance Fees	Total	Percentage	Annual Cost (in bps)
Domestic Equity	\$ 12,497,587	\$ -	\$ 12,497,587	6.6%	22
International Equity	\$ 11,155,872	\$ -	\$ 11,155,872	5.9%	36
Fixed Income	\$ 6,937,671	\$ -	\$ 6,937,671	3.7%	18
Private Equity	\$ 32,480,682	\$ 21,507,198	\$ 53,987,880	28.6%	96
Real Estate	\$ 18,443,934	\$ 14,596,473	\$ 33,040,407	17.5%	75
Real Return	\$ 19,003,682	\$ 1,730,786	\$ 20,734,468	11.0%	74
Hedge Fund	\$ 26,783,230	\$ 9,829,648	\$ 36,612,878	19.4%	198
Credit and Structured Finance	\$ 10,138,555	\$ 3,958,640	\$ 14,097,195	7.5%	121
<b>Total</b>	<b>\$ 137,441,213</b>	<b>\$ 51,622,745</b>	<b>\$ 189,063,958</b>	<b>100.0%</b>	<b>59</b>

**Peer Total Return Rankings.** The following table shows net-of-fees peer total return rankings for the agencies' large funds for the quarter, one, three, five, and ten-year periods. A lower rank (1<sup>st</sup> is best) denotes better performance when compared to other public funds within a comparable investment universe. The Wilshire Trust Universe Comparison Service (TUCS) completes these comparisons. TUCS is a benchmark service that evaluates the performance and allocation of institutional investment assets. The service evaluates New Mexico's investment agencies alongside approximately 50 public funds with more than \$1 billion in assets.





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Overall, the returns varied and fell across a broad range of rankings when compared with similar funds in the universe. During the quarter and for the one year, ERB performed exceptionally well when ranked against its peers. PERA and the permanent funds performed below the median for every period reported. ERB ranked at the 15<sup>th</sup> percentile for the quarter, performing above LGPF, STPF, and PERA, which ranked at the 54<sup>th</sup>, 57<sup>th</sup>, and 71<sup>st</sup> percentiles respectively. ERB also outperformed over the course of the fiscal year, ranking high in the 9<sup>th</sup> percentile and exceeding the ranking of PERA, LGPF, and STPF which ended in the 63<sup>rd</sup>, 69<sup>th</sup>, and 68<sup>th</sup> percentiles respectively.

**Asset Allocation.** Figure 5 below illustrates each investment agency's asset allocation long-term targets compared to actual asset allocations for the quarter. ERB, LGPF, and STPF asset allocations are generally within target for the quarter. PERA's asset allocations in global equity and risk parity were above target, while investments in fixed income and real assets were under target. The PERA board updated the strategic asset allocation (SAA) in April 2016 to include only asset classes: global equity, risk reduction and mitigation, credit oriented fixed income, and real assets. PERA reported in its June 2016 investment executive summary that the board is working on an implementation plan for the new SAA.

